

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 19 March 2001 (19.03.01)	
<b>International application No.</b> PCT/FI00/00583	<b>Applicant's or agent's file reference</b> 2990193PC/nu
<b>International filing date (day/month/year)</b> 28 June 2000 (28.06.00)	<b>Priority date (day/month/year)</b> 30 June 1999 (30.06.99)
<b>Applicant</b> TUULOS, Martti	

1. The designated Office is hereby notified of its election made:

☒ In the demand filed with the International Preliminary Examining Authority on:

19 January 2001 (19.01.01)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

C. Cupello

Telephone No.: (41-22) 338.83.38

601018572

Copy for the Elected Office (EO/US)

PCT/FI00/00583

## PCT COOPERATION TREATY

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NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

KOLSTER OY AB  
Iso Roobertinkatu 23  
P.O. Box 148  
FIN-00121 Helsinki  
FINLANDE

Date of mailing (day/month/year) 18 avril 2002 (18.04.02)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 2990193PC/Hm	
International application No. PCT/FI00/00583	International filing date (day/month/year) 28 juin 2000 (28.06.00)

1. The following indications appeared on record concerning:		
<input checked="" type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address NOKIA NETWORKS OY Keilalahdentie 4 FIN-02150 Espoo Finland	State of Nationality FI	State of Residence FI
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input type="checkbox"/> the person	<input checked="" type="checkbox"/> the name	<input type="checkbox"/> the address
<input type="checkbox"/> the nationality		
<input type="checkbox"/> the residence		
Name and Address NOKIA CORPORATION Keilalahdentie 4 FIN-02150 Espoo Finland	State of Nationality	State of Residence
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Jaime LEITAO
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

# RECORD COPY

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PCT REQUEST

2990193PC/nu

Original (for SUBMISSION) - printed on 28.06.2000 01:00:37 PM

0	For receiving Office use only	
0-1	International Application No.	PCT/FI 00 / 00583
0-2	International Filing Date	28 JUN 2000 (28-06-2000)
0-3	Name of receiving Office and "PCT International Application"	The Finnish Patent Office PCT International Application
0-4	Form - PCT/RO/101 PCT Request Prepared using	PCT-EASY Version 2.90 (updated 10.05.2000)
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	National Board of Patents and Registration (Finland) (RO/FI)
0-7	Applicant's or agent's file reference	2990193PC/nu
I	Title of invention	IDENTIFYING AN OBJECT
II	Applicant	
II-1	This person is:	applicant only
II-2	Applicant for	all designated States except US
II-4	Name	NOKIA NETWORKS OY
II-5	Address:	Keilalahdentie 4 FIN-02150 Espoo Finland
II-6	State of nationality	FI
II-7	State of residence	FI
III-1	Applicant and/or inventor	
III-1-1	This person is:	applicant and inventor
III-1-2	Applicant for	US only
III-1-4	Name (LAST, First)	TUULOS, Martti
III-1-5	Address:	Pilotinkatu 38 FIN-33900 Tampere Finland
III-1-6	State of nationality	FI
III-1-7	State of residence	FI

## PCT REQUEST

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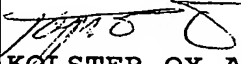
2990193PC/nu

IV-1	Agent or common representative; or address for correspondence The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	agent
IV-1-1	Name	KOLSTER OY AB
IV-1-2	Address:	Iso Roobertinkatu 23 P.O. Box 148 FIN-00121 Helsinki Finland
IV-1-3	Telephone No.	358 9 618 821
IV-1-4	Facsimile No.	358 9 602 244
IV-1-5	e-mail	kolster@kolster.fi
V	Designation of States	
V-1	Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AP: GH GM KE LS MW MZ SD SL SZ TZ UG ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE CH&LI CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT
V-2	National Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AE AG AL AM AT (patent and utility model) AU AZ BA BB BG BR BY BZ CA CH&LI CN CR CU CZ (patent and utility model) DE (patent and utility model) DK (patent and utility model) DM DZ EE (patent and utility model) ES FI (patent and utility model) GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR (patent and utility model) KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK (patent and utility model) SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

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V-5	<b>Precautionary Designation Statement</b> In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit.		
V-6	<b>Exclusion(s) from precautionary designations</b>	NONE	
VI-1	<b>Priority claim of earlier national application</b>		
VI-1-1	Filing date	30 June 1999 (30.06.1999)	
VI-1-2	Number	991494	
VI-1-3	Country	FI	
VI-2	<b>Priority document request</b> The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):	VI-1	
VII-1	<b>International Searching Authority Chosen</b>	Swedish Patent Office (ISA/SE)	
VIII	<b>Check list</b>	number of sheets	electronic file(s) attached
VIII-1	Request	4	-
VIII-2	Description	9	-
VIII-3	Claims	4	-
VIII-4	Abstract	1	2990193p.txt
VIII-5	Drawings	2	-
VIII-7	TOTAL	20	
VIII-8	<b>Accompanying items</b>	paper document(s) attached	electronic file(s) attached
VIII-9	Fee calculation sheet	✓	-
VIII-10	Separate signed power of attorney	✓	-
VIII-10	Copy of general power of attorney	✓	-
VIII-16	PCT-EASY diskette	-	diskette
VIII-18	Figure of the drawings which should accompany the abstract	2	
VIII-19	Language of filing of the international application	English	
IX-1	Signature of applicant or agent	 Tapio Äkräs	
IX-1-1	Name	KOLSTER OY AB	

## FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	28 JUN 2000 (28-06-2000)
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	

## PCT REQUEST

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10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/SE
10-6	Transmittal of search copy delayed until search fee is paid	

## FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	
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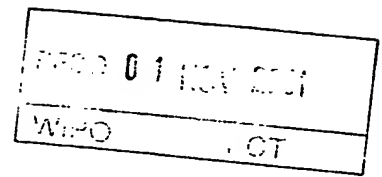
WAC 10/018572 (05807)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



10

Applicant's or agent's file reference 2990193PC/or		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/FI00/00583	International filing date (day/month/year) 28.06.2000	Priority date (day/month/year) 30.06.1999
International Patent Classification (IPC) or national classification and IPC <sub>7</sub> H 04 Q 7/32, G 06 K 7/10, G 06 F 17/30, G 06 F 17/60		
Applicant Nokia Networks OY et al		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>3</u> sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>	

Date of submission of the demand  19.01.2001	Date of completion of this report  09.10.2001
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer  Kerstin Waczinska/mj Telephone No. 08-782 25 00

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI00/00583

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☐ the international application as originally filed
- ☒ the description:  
pages 1-9 , as originally filed  
pages \_\_\_\_\_ , filed with the demand  
pages \_\_\_\_\_ , filed with the letter of \_\_\_\_\_
- ☒ the claims:  
pages \_\_\_\_\_ , as originally filed  
pages 10-12 , as amended (together with any statement) under article 19  
pages \_\_\_\_\_ , filed with the demand  
pages \_\_\_\_\_ , filed with the letter of \_\_\_\_\_
- ☒ the drawings:  
pages 1-2 , as originally filed  
pages \_\_\_\_\_ , filed with the demand  
pages \_\_\_\_\_ , filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_ , as originally filed  
pages \_\_\_\_\_ , filed with the demand  
pages \_\_\_\_\_ , filed with the letter of \_\_\_\_\_

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheet/fig \_\_\_\_\_

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.



## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI00/00583

## III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 1 - 9

because:

☐ the said international application, or the said claims Nos. \_\_\_\_\_  
relate to the following subject matter which does not require an international preliminary examination (*specify*):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. \_\_\_\_\_  
are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. \_\_\_\_\_ are so inadequately supported  
by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claims Nos. 1 - 9

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

# CLAIMS

(AMENDED UNDER ARTICLE 19 ON MARCH 1, 2001)

1. A method of identifying an object having an identification means,  
5 **characterized by**  
receiving at a mobile station an authorization signal indicating a point of time allowed for transmission of an identification request signal,  
reading the object's identification data from the identification means  
by transmitting said identification request signal by the mobile station's radio  
10 transmitter, and receiving an identification signal by the mobile station's radio receiver or by the mobile station's infrared receiver, and  
identifying said object on the basis of the identification data included in the identification signal.
2. A method as claimed in claim 1, **characterized by the**  
15 further steps of  
transmitting the identification data read by the mobile station with the mobile station's radio transmitter via a base station in a mobile communication system to a data processing device in which data relating to said object is stored, and  
20 identifying said object by comparing the data stored in the data processing device with said identification data.
3. A system comprising  
a mobile switching centre (MSC),  
a base station (BTS) communicating with the mobile switching centre,  
25 tre,  
a mobile station (MS, MS') comprising a radio transmitter (TRX) and a radio receiver (TRX) for setting up a connection to the mobile switching centre via the base station,  
an object (1) comprising an identification means (2) composed of a  
30 tag comprising means for generating an identification signal including identification data in response to a predetermined identification request signal, and  
a data processing device (3) in which data relating to said object is maintained, **characterized in that**  
said system comprises control means (BSC) for generating and  
35 transmitting an authorization signal indicating a point of time allowed for

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transmitting an identification request signal, and

said mobile station (MS, MS') comprises

means for reading said object's (1) identification data from the identification means (2):

5           - by transmitting an identification request signal with the mobile stations (MS) radio transmitter (TRX) at a point of time indicated by the authorization signal, and

          - by receiving the identification data included in an identification signal with the mobile stations radio receiver (TRX) or with an infrared receiver  
10       (5), and

          means for transmitting the read identification data with the mobile station's radio transmitter (TRX) over the radio path via the base station (BTS) further to said data processing device (3).

4. A system as claimed in claim 3, **characterized** in that said  
15       tag (2) is a passive tag comprising means for recovering energy from said identification request signal and means for generating said identification signal with said recovered energy.

5. A system as claimed in claim 3 or 4, **characterized** in that said tag comprises means for generating an RF frequency identification signal.

20           6. A system as claimed in claim 3 or 4, **characterized** in that said tag comprises means for generating an identification signal composed of an infrared signal.

7. A system as claimed in any one of claims 3 to 6, **characterized** in that

25           said control means (BSC) are arranged to generate and transmit said authorization signal in response to an inquiry signal received by the control means, and

          said mobile station (MS) comprises means (TRX) for transmitting the inquiry signal to said control means (BSC).

30           8. A system as claimed in any one of claims 3 to 6, **characterized** in that

          said system is a time division mobile communication system, in which the frequency channels used by the system are divided into timeslots,

35           said control means (BSC) are arranged to generate and transmit an authorization signal indicating the timeslot or timeslots allowed for the transmission of the identification request signal, and

said mobile station (MS) comprises means (TRX) for receiving the authorization signal from the control means (BSC) and for transmitting the identification request signal in the timeslot indicated by the authorization signal.

- 5                   9. A mobile station comprising
  - a user interface (4), and
  - a radio transmitter (TRX) and a radio receiver (TRX) for setting up a connection to a base station (BTS) in a mobile communication system via radio signals, **c h a r a c t e r i z e d** in that the mobile station further comprises
    - 10                   means for receiving an authorization signal transmitted by the base station (BTS) over the radio path,
    - means (TRX, 5) which, in response to measures carried out by the mobile station's user via the user interface (4), read identification data from an object's identification means (2), said means for reading the identification data
      - 15                   are composed of the mobile station's (MS) radio transmitter (TRX), which at the point of time indicated by the authorization signal transmits a predetermined identification request signal, and of the mobile station's radio receiver (TRX) or of an infrared receiver (5), which receives an identification signal comprising the identification data, and
      - 20                   the mobile station (MS, MS') comprises means for transmitting the read identification data with said radio transmitter (TRX) to said base station.

(19) World Intellectual Property Organization  
International Bureau



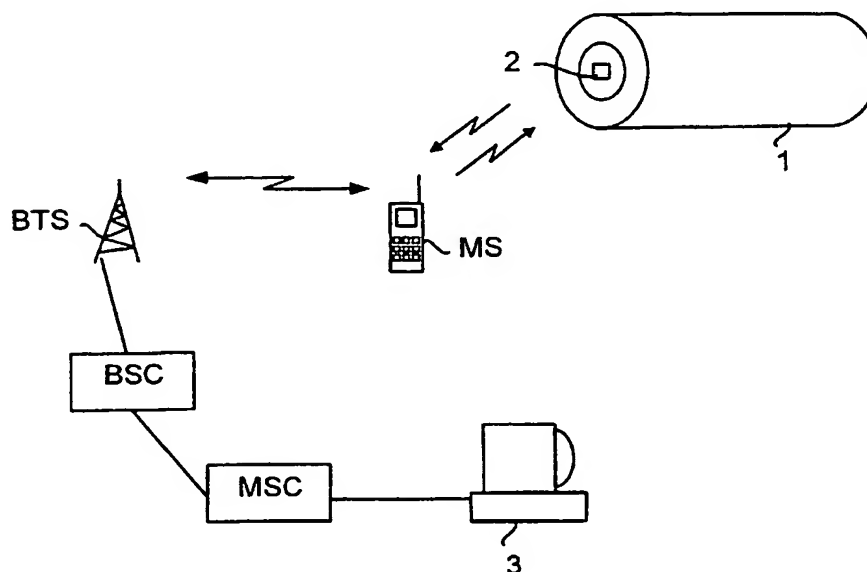
(43) International Publication Date  
11 January 2001 (11.01.2001)

PCT

(10) International Publication Number  
**WO 01/02873 A2**

- (51) International Patent Classification<sup>7</sup>: **G01S**
- (21) International Application Number: **PCT/FI00/00583**
- (22) International Filing Date: **28 June 2000 (28.06.2000)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:  
991494 30 June 1999 (30.06.1999) **FI**
- (71) Applicant (for all designated States except US): **NOKIA NETWORKS OY [FI/FI]**; Keilalahdentie 4, FIN-02150 Espoo (FI).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **TUULOS, Martti [FI/FI]**; Pilotinkatu 38, FIN-33900 Tampere (FI).
- (74) Agent: **KOLSTER OY AB**; Iso Roobertinkatu 23, P.O. Box 148, FIN-00121 Helsinki (FI).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:**  
— Without international search report and to be republished upon receipt of that report.
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **IDENTIFYING AN OBJECT**



(57) Abstract: The present invention relates to a system comprising: a mobile switching centre (MSC), a base station (BTS) communicating with the mobile switching centre, a mobile station (MS) comprising a radio transmitter and a radio receiver for setting up a connection to the base station via the base station, an object (1) comprising an identification means (2), and a data processing device (3) in which data relating to said object is maintained. For identifying the object, the mobile station (MS) comprises: means for reading said object's (1) identification data from the identification means (2), and means for transmitting the read identification data by the mobile station's radio transmitter over the radio path via the base station (BTS) further to said data processing device (3).

## IDENTIFYING AN OBJECT

The present invention relates to identifying an object by means of an identification means arranged in the object.

5 In previously known solutions, objects, i.e. for example components processed in a factory warehouse or on a production line, are provided with identification means, which allow mechanical identification of said objects. Examples of such known identification means are bar code labels and tags. To identify an object, identification data is read from its identification means, allowing the object to be identified.

10 In known solutions, tailor-made hardware is used for the identification of objects. Consequently, for example a person working by a production line in a factory has at his disposal a reading device, such as a bar code reader or a device for reading identification data from a tag. In cases when the identification data read from the identification means has to be transmitted to, 15 for example, a data processing device in which inventory accounting or the like is maintained, the reading device is usually connected to a communication device by means of which the identification data can be transmitted further to the data processing device.

A known reading device of the type described above has, however, 20 the disadvantage that the device used has to be tailor-made for reading the identification means. If, in addition, the identification data has to be transmitted to a data processing device, this means that two different devices have to be matched up in order to provide a working reading device. In practice, matching up two different devices often requires changes to both devices in 25 order for them to co-operate. In addition, a reading device composed of separate, interconnected devices is usually large, complicated to use and relatively expensive.

It is an object of the present invention to solve the above problem and to provide a solution for facilitating the identification of an object comprising an identification means, and enabling a more flexible and inexpensive way 30 to accomplish a reading device. This object is achieved by the method of the invention of identifying an object comprising an identification means. The method of the invention is characterized by reading the object's identification data from the identification means by a mobile station, and identifying said 35 object on the basis of the identification data read by the mobile station.

The invention also relates to a system in which the method of the

invention can be utilized. The system of the invention comprises: a mobile switching centre, a base station communicating with the mobile switching centre, a mobile station comprising a radio transmitter and a radio receiver for setting up a connection to the mobile switching centre via the base station, an  
5 object comprising an identification means, and a data processing device in which data relating to said object is maintained. The system of the invention is characterized in that said mobile station comprises: means for reading the object's identification data from the identification means, and means for transmitting the read identification data by the mobile station's radio transmitter over the radio path via the base station further to said data processing de-  
10 vice.

The invention further relates to a mobile station, which can be utilized in the system of the invention. The mobile station of the invention comprises a user interface, a radio transmitter and a radio receiver for setting up a  
15 connection to a base station in a mobile communication system via radio signals. The mobile station of the invention is characterized by comprising means for reading identification data from the object's identification means in response to measures taken by the mobile station's user via the user interface, and means for transmitting the read identification data to said base station by  
20 said radio transmitter.

The invention is based on utilizing a conventional mobile station of a mobile communication system for reading identification data from the identification means. This eliminates the need to make a special reading device solely for reading the identification data. If the read identification data has to  
25 be transmitted to a special data processing device, the mobile station is able to attend to this when reading the identification data, for example by transmitting the identification data as a short message via a mobile communication network to the data processing device.

The most significant advantage of the solution of the invention is  
30 that there is no need for a special reading device for reading the identification data. Consequently, the device used for reading the data, i.e. a mobile station, is notably more inexpensive than in known solutions, in which said device has to be specially tailor-made for said purpose. In addition, the reading device, i.e. the mobile station, can be made distinctly smaller than known reading de-  
35 vice/radio transmitter combinations. This facilitates the use and handling of the device used for reading the identification data. Owing to its small size, the

device used for reading the data is also suitable for use as a conventional mobile station.

In a preferred embodiment of the invention, the identification means is composed of a bar code. In this case, a bar code reader can be integrated into the mobile station and used for reading the data from the object's identification means.

In a second preferred embodiment of the invention, the identification means can be composed of a tag. This allows the radio transmitter of the mobile station to be utilized for transmitting a predetermined identification request signal. In this case, in response to the identification request signal, the tag generates an identification signal, which the mobile station receives either with its radio receiver or, alternatively, with an infrared receiver. Since mobile stations comprising not only a radio transmitter and a radio receiver, but also an infrared receiver, are already in use, this embodiment of the invention also renders it unnecessary to make any structural changes to the mobile station. It is also feasible to achieve the changes necessary for applying the invention simply by changing the mobile station's software.

As identification means can be used a tag capable of recovering operational energy from the RF field surrounding it. Consequently, the tag can be a passive tag that obtains the necessary operational energy from the RF field of the identification request signal transmitted by the mobile station. However, the tag is preferably so programmed that it generates an identification signal only when it has received the right identification request signal. In other words, the identification request signal preferably includes a certain code whose identification makes the tag generate the identification signal. This prevents a radio signal generated for example by a base station in a mobile communication system from inducing the transmission of an identification signal, even though said radio signal is at the tag's toggle frequency.

In order for the identification request signal transmitted by the mobile station via the radio transmitter not to interfere with other parts of the mobile communication system, the mobile communication system preferably comprises control means for producing an authorization signal. In this case, said authorization signal indicates to the mobile station the point of time allowed for the transmission of an identification request signal. In a digital time division mobile communication system, for example, a given timeslot can be reserved for the transmission of the identification request signal, and the mo-



bile communication system forwards information on this timeslot in an authorization signal to be transmitted on its control channel.

In a third preferred embodiment of the invention, an infrared transmitter for transmitting the identification request signal can be arranged in the mobile station. In this case, the identification means can be composed of a tag comprising a battery and an infrared receiver, for example. Consequently, the tag is able to generate the identification signal in response to an identification request signal by the operational energy obtained from the battery. The tag can generate the identification signal with, for example, infrared signals or radio signals.

The preferred embodiments of the method, system and mobile station of the invention are disclosed in the attached dependent claims 2 to 7, 9 to 15, and 17 to 20.

In the following, the invention will be described in greater detail by way of example, with reference to the attached figures, of which

Figure 1 is a flow chart of a first preferred embodiment of the method of the invention,

Figure 2 is a block diagram of a first preferred embodiment of the system of the invention,

Figure 3 illustrates a first preferred embodiment of the mobile station of the invention,

Figure 4 illustrates a second preferred embodiment of the mobile station of the invention, and

Figure 5 illustrates a third preferred embodiment of the mobile station of the invention.

Figure 1 is a flow chart of a first preferred embodiment of the method of the invention.

In block A in Figure 1, a mobile station generates and transmits a predetermined identification signal. Said identification signal can be transmitted for example with the radio transmitter of the mobile station or, alternatively, with the infrared transmitter of the mobile station. The type of identification means arranged in the object to be identified is naturally decisive.

In block B, the mobile station receives the identification signal including identification data. The identification signal can be received with the radio receiver of the mobile station if the identification means used is for example a tag generating an RF frequency identification signal. If again the

identification means generates an identification signal composed of an infrared signal, it can be received with the infrared receiver of the mobile station.

In block C, the identification data received is transmitted with the radio transmitter of the mobile station further to a data processing device, in which data on objects to be identified and their identification data is maintained. The identification data can be transmitted for example in a short message or another corresponding text message via the mobile communication system to the data processing device.

In block D, the object, whose identification data was read, is identified. For this purpose, a list of all objects to be identified is stored in the data processing device, and the list contains the identification data of each object.

Figure 2 is a block diagram of a first preferred embodiment of the system of the invention. In the case of Figure 2, the assumption is, by way of example, that the object to be identified is composed of a paper roll 1, to which an identification means 2 is fastened.

The system of Figure 2 comprises a data processing device 3 for maintaining data relating to the objects to be identified. If the objects to be identified are assumed to be for example paper rolls, then the following can be stored in the data processing device 3 for each paper roll: identification data, i.e. an identifier to be read from the identification means attached to the paper roll, the weight of the paper roll, and the buyer/receiver of the paper roll. Consequently, for example the weight of the paper roll can be determined by means of the identification data of the paper roll.

In the case of Figure 2, the identification data on the paper roll is read with a mobile station MS from the identification means 2 attached to the paper roll. Once the identification data is read to the mobile station MS, the mobile station MS transmits it further via its radio transmitter to a base station BTS. From the base station, the identification data is forwarded by a mobile communication network further via a base station controller BSC and a mobile switching centre MSC to the data processing device 3. If the identification data is transmitted in a short message, a short message service centre (not shown in the figure) in the mobile communication system also participates in the data transmission.

Once the data processing device 3 has received the identification data, it retrieves from its memory the data on the object to be identified. The data processing device may have been programmed to return the data on the

identified object to for example the mobile station MS in a short message transmitted via the mobile communication system. Such an embodiment allows the user of the mobile station to receive on the display of his mobile station MS for example the name of the receiver of the paper roll 1, once he has first  
5 read the identification data on the paper roll 1 from the identification means 2 with the mobile station.

The identification data on the paper roll 1 can be read from the identification means in several alternative ways depending on the type of identification means 2 that is attached to the paper roll. Reading the data is  
10 described in greater detail for Figures 3 to 5.

Figure 3 illustrates a first preferred embodiment of the mobile station of the invention. The mobile station MS shown in Figure 3 is a conventional mobile telephone comprising a combined radio transmitter/radio receiver unit TRX that the mobile station uses to set up a connection to the other  
15 parts of the mobile communication system.

The mobile station MS of Figure 3 can be utilized in the system of the invention for example when the identification means 2 is a passive tag, known per se. A passive tag absorbs energy from the surrounding RF field. The tag uses the absorbed energy to generate an RF field at another frequency.  
20

In accordance with the invention, in response to measures (e.g. pushing a certain button) taken by the mobile station's user via a user interface, the mobile station MS transmits with its radio transmitter TRX an identification request signal at a given frequency. In this case the identification signal  
25 includes a given code, to the recognition of which the tag reacts by transmitting an RF frequency identification signal including the identification data stored in the tag. The mobile station receives via its radio receiver said identification signal, via which the identification data in the identification means can be read in the mobile station MS.

Tags operating for example in the range of about 900 MHz are commercially available. This means that a mobile station of the GSM system, for example, can read the contents of such tags, provided that the mobile station is programmed to operate at the toggle frequency of that particular tag. A tag usually employs two toggle frequencies, the first of which is used to invoke  
30 the tag, i.e. a given signal at said frequency makes the tag transmit the data stored in its memory at the second toggle frequency. This way a mobile station  
35

capable of duplex type of communication can be so programmed that the transmission frequency of the mobile station corresponds to the first toggle frequency of the tag, and the reception frequency of the mobile station corresponds to the second toggle frequency of the tag. Such commercially available tags may comprise for example a 64-bit memory, in which the identification data can be stored so that they can be read from the memory by means of a mobile station MS.

In order for the reading of data by means of a mobile station's MS radio transmitter and radio receiver not to interfere with the operation of the other parts of a mobile communication network, the mobile station MS can be programmed to transmit the identification request message on a given frequency channel, which is reserved in the mobile communication system for reading identification data. Alternatively, the mobile station can transmit the identification data at a given predetermined point of time, which allows the utilization of a frequency channel that is also used for other purposes. This may be accomplished for example by the mobile station MS first sending a predetermined inquiry signal via the base station BTS of Figure 2 to the base station controller BSC, when the mobile station's MS user activates the reading of the identification data via the user interface 4. The base station controller BSC then checks the point of time allowed for reading the data without other network parts being disturbed. The base station controller indicates said point of time to the mobile station MS by a special authorization signal that the base station controller transmits to the mobile station MS via the base station BTS. Consequently, the transmitter TRX of the mobile station transmits the identification request signal at the point of time indicated by the authorization signal.

If the data has to be read from the identification means on a frequency channel that is used by the mobile communication system, the mobile station can be programmed to use a low power level during the reading. In many cases the mobile station can be brought very near the identification means before the mobile station transmits the identification request signal. Consequently, an identification request signal transmitted on a low power level is sufficient for reading the data of the identification means comprised of for example a tag. In addition, the duration in time of the identification request signal may be short. An identification signal having a low power level and/or a short duration in time brings about the advantage that the interference caused

to other system parts is minimized.

When the invention is applied in a time division mobile telephone system, the base station controller BSC of Figure 2 can allocate a given timeslot from the base station BTS for reading the identification data. In this case the base station BTS transmits on its control channel, along with other data relating to the radio cell it maintains, a special authorization signal that indicates the timeslot allowed for reading the identification data. When the user of the mobile station MS of Figure 3 uses the user interface 4 to activate the reading of the identification data, the mobile station waits until it receives an authorization signal on the control channel. The transmitter TRX of the mobile station MS then waits until it is the turn of the timeslot indicated by the authorization signal to transmit, and then transmits the identification request signal.

In accordance with the invention, the mobile station of Figure 3 can also be utilized for changing the data stored in the tag. In this case the transmitter of the mobile station transmits a predetermined signal, which the tag identifies, and which indicates to the tag that it must store in the memory the data transmitted from the mobile station. For example identification data can thus be stored in the tag in such a way that the user of the mobile station uses a keyboard to write the identification data that is to be stored in the tag.

Figure 4 illustrates a second preferred embodiment of the mobile station of the invention. In Figure 4, the mobile station MS' largely corresponds to the mobile station of Figure 3, but in the case of Figure 4, the mobile station MS reads the identification data by means of an infrared transmitter 5 and an infrared receiver 5.

Accordingly, the mobile station of Figure 4 is utilized with a tag that comprises means for receiving an identification request signal composed of an infrared signal, and for sending an identification signal composed of infrared signals. The use of infrared signals provides the advantages that the reading of identification data does not cause unnecessary interference to other parts of a mobile communication system.

Unlike in Figure 4, the mobile station may also be programmed to transmit the identification request signal by its radio transmitter TRX, and then receive the identification signal via the infrared receiver 5. In this case the mobile station can be utilized with a tag that is able to absorb the energy required for its operation from the identification request signal transmitted by the

radio transmitter of the mobile station, and then use the absorbed energy and the infrared transmitter to transmit the identification signal composed of infrared signals.

5 Figure 5 illustrates a third preferred embodiment of the mobile station of the invention. In the embodiment of Figure 5, the mobile station MS" is provided with a bar code reader 6. In other words, said embodiment is suitable for use when the identification means is composed of a bar code label. In this case the mobile station reads the identification data comprised by the bar code via the bar code reader 6, once the user of the mobile station MS" activates the reading of the data via the user interface.

10

It is to be understood that the above description and the related figures are only intended to illustrate the present invention. Different variations and modifications of the invention will be apparent to a person skilled in the art without deviating from the scope and spirit of the invention set forth in the attached claims.

15

## CLAIMS

1. A method of identifying an object having an identification means, **characterized** by

reading the object's identification data from the identification means  
5 by a mobile station, and  
identifying said object on the basis of the identification data read by  
the mobile station.

2. A method as claimed in claim 1, **characterized** by said  
identification means being composed of a bar code, whereby the object's  
10 identification data is read from the identification means by a bar code reader  
arranged in the mobile station.

3. A method as claimed in claim 1, **characterized** in that for  
reading the object's identification data  
a predetermined identification request signal is transmitted by the  
15 mobile station,

an identification signal, generated by said identification means in  
response to the identification request signal is received by the mobile station,  
and

said object is identified on the basis of the identification data in-  
20 cluded in the identification signal.

4. A method as claimed in claim 3, **characterized** by send-  
ing said identification request signal by the mobile station's radio transmitter,  
and receiving said identification signal by the mobile station's radio receiver.

5. A method as claimed in claim 3, **characterized** by trans-  
25 mitting said identification request signal by the mobile station's radio trans-  
mitter and receiving said identification signal by the mobile station's infrared  
receiver.

6. A method as claimed in claim 3, **characterized** by send-  
ing said identification request signal by the mobile station's infrared transmit-  
30 ter and receiving said identification signal by the mobile station's infrared re-  
ceiver.

7. A method as claimed in any one of claims 1 to 6, **charac-**  
**terized** by the further steps of  
transmitting the identification data read by the mobile station with  
35 the mobile station's radio transmitter via a base station in a mobile communi-

cation system to a data processing device in which data relating to said object is stored, and

identifying said object by comparing the data stored in the data processing device with said identification data.

5 8. A system comprising  
a mobile switching centre (MSC),  
a base station (BTS) communicating with the mobile switching centre,

10 a mobile station (MS, MS', MS'') comprising a radio transmitter (TRX) and a radio receiver (TRX) for setting up a connection to the mobile switching centre via the base station,

an object (1) comprising an identification means (2), and

15 a data processing device (3) in which data relating to said object is maintained, **characterized** in that said mobile station (MS, MS', MS'') comprises

means for reading said object's (1) identification data from the identification means (2), and

20 means for transmitting the read identification data with the mobile station's radio transmitter (TRX) over the radio path via the base station (BTS) further to said data processing device (3).

9. A system as claimed in claim 8, **characterized** in that said identification means is composed of a bar code, and that said mobile station (MS'') comprises a bar code reader (6) for reading the identification data from the identification means.

25 10. A system as claimed in claim 8, **characterized** in that said identification means is composed of a tag comprising means for generating an identification signal including identification data in response to a predetermined identification request signal, and

30 the mobile station's (MS, MS') means for reading the identification data include

means (TRX, 5) for transmitting said identification request signal, and

means (TRX, 5) for receiving the identification data included in said identification signal.

35 11. A system as claimed in claim 10, **characterized** in that the means for transmitting the identification request signal are com-



posed of the mobile station's (MS) radio transmitter (TRX), and

said tag (2) is a passive tag comprising means for recovering energy from said identification request signal and means for generating said identification signal with said recovered energy.

5 12. A system as claimed in claim 10 or 11, **characterized** in that

said tag comprises means for generating an RF frequency identification signal, and

10 said mobile station's (MS) means for receiving the identification signal are composed of the mobile station's radio receiver (TRX).

13. A system as claimed in claim 10 or 11, **characterized** in that

said tag comprises means for generating an identification signal composed of an infrared signal, and

15 said mobile station's (MS') means for receiving the identification signal are composed of an infrared receiver (5).

14. A system as claimed in any one of claims 11 to 13, **characterized** in that

20 the system comprises control means (BSC) which, in response to an inquiry signal received by the control means, generate and transmit a predetermined authorization signal indicating the point of time allowed for transmitting the identification request signal, and

25 said mobile station (MS) comprises means (TRX) for transmitting the inquiry signal to said control means (BSC), for receiving the authorization signal from the control means, and for transmitting the identification request signal at the point of time indicated by the authorization signal.

15. A system as claimed in any one of claims 11 to 13, **characterized** in that

30 said system is a time division mobile communication system, in which the frequency channels used by the system are divided into timeslots,

the mobile communication system comprises control means (BSC) for generating and transmitting a predetermined authorization signal indicating the timeslot or timeslots allowed for the transmission of the identification request signal, and

35 said mobile station (MS) comprises means (TRX) for receiving the authorization signal from the control means (BSC) and for transmitting the

identification request signal in the timeslot indicated by the authorization signal.

16. A mobile station comprising  
a user interface (4), and  
5 a radio transmitter (TRX) and a radio receiver (TRX) for setting up a connection to a base station (BTS) in a mobile communication system via radio signals, **characterized** in that

the mobile station comprises means (TRX, 5, 6) which, in response to measures carried out by the mobile station's user via the user interface (4),  
10 read identification data from an object's identification means (2), and

the mobile station (MS, MS', MS'') comprises means for transmitting the read identification data with said radio transmitter (TRX) to said base station.

17. A mobile station as claimed in claim 16, **characterized**  
15 in that said means for reading the identification data are composed of a bar code reader (6).

18. A mobile station as claimed in claim 16, **characterized**  
in that said means for reading the identification data are composed of the mobile station's (MS) radio transmitter (TRX), which transmits a predetermined  
20 identification request signal, and of the mobile station's radio receiver (TRX), which receives an identification signal comprising the identification data.

19. A mobile station as claimed in claim 16, **characterized**  
in that said means for reading the identification data are composed of the mobile station's radio transmitter (TRX), which transmits a predetermined identification  
25 cation request signal, and of an infrared receiver (5), which receives an identification signal, which is transmitted via infrared signals and includes said identification data.

20. A mobile station as claimed in any one of claims 18 to 19, **characterized** in that the mobile station further comprises means for  
30 receiving an authorization signal transmitted by the base station (BTS) over the radio path, and that the mobile station's radio transmitter (TRX) transmits said identification request signal at the point of time indicated by the authorization signal.

1/2

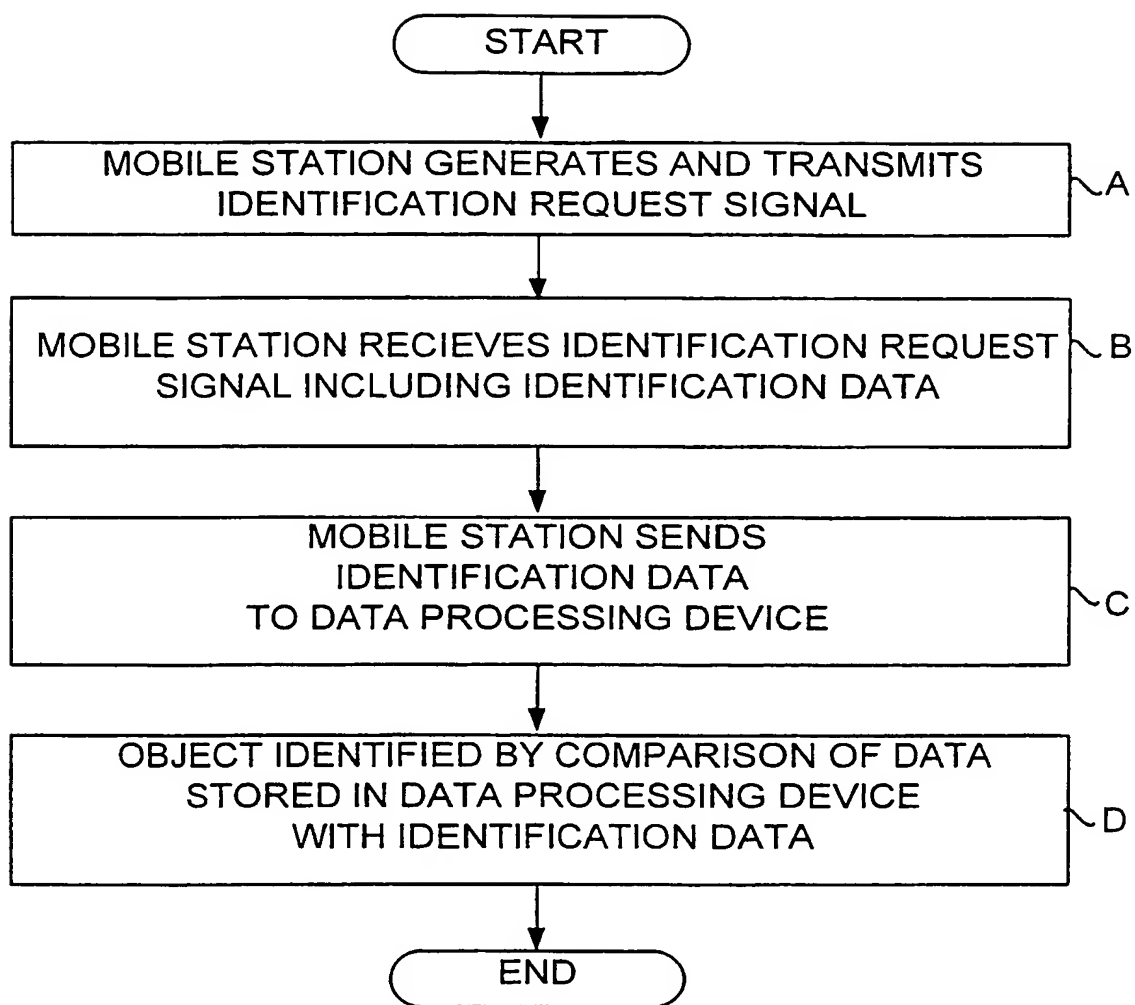


FIG. 1

2/2

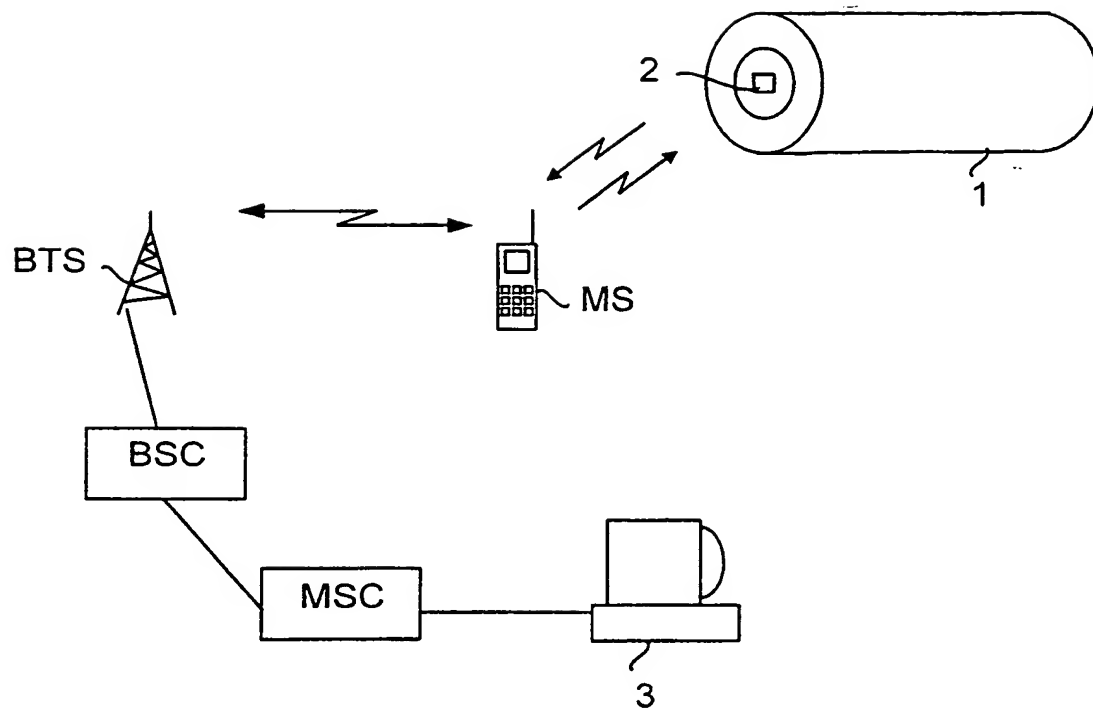


FIG. 2

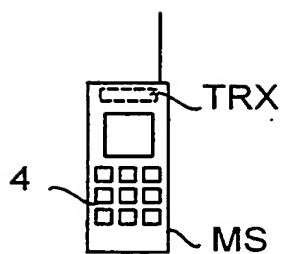


FIG. 3

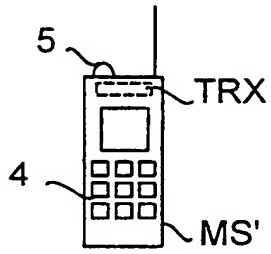


FIG. 4

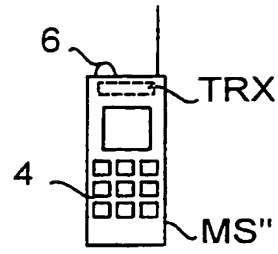


FIG. 5

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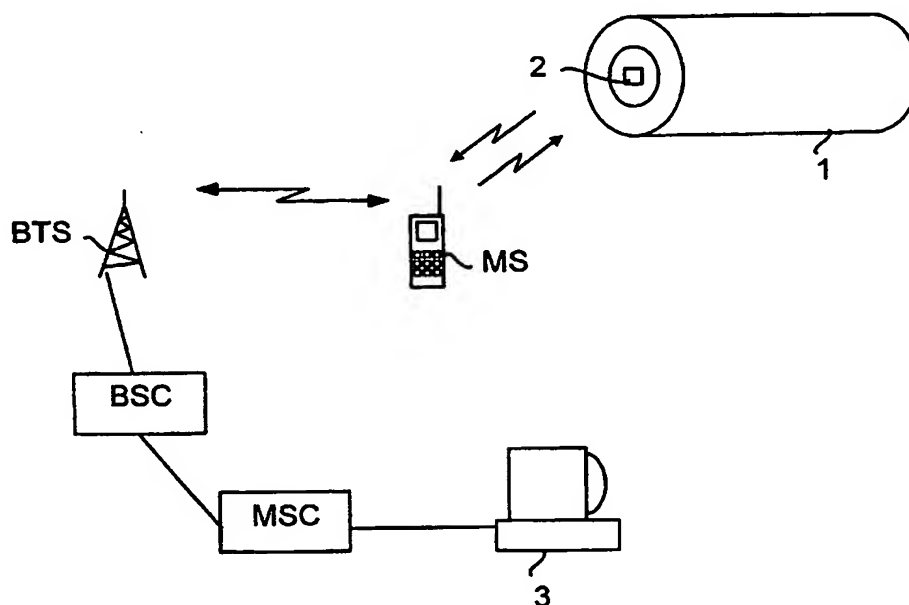
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[Continued on next page]

(54) Title: IDENTIFYING AN OBJECT



(57) Abstract: The present invention relates to a system comprising: a mobile switching centre (MSC), a base station (BTS) communicating with the mobile switching centre, a mobile station (MS) comprising a radio transmitter and a radio receiver for setting up a connection to the base station via the base station, an object (1) comprising an identification means (2), and a data processing device (3) in which data relating to said object is maintained. For identifying the object, the mobile station (MS) comprises: means for reading said object's (1) identification data from the identification means (2), and means for transmitting the read identification data by the mobile station's radio transmitter over the radio path via the base station (BTS) further to said data processing device (3).

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— *with amended claims*

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**AMENDED CLAIMS**

[received by the International Bureau on 1 March 2001 (01.03.01);  
original claims 1-20 replaced by amended claims 1-9 (3 pages)]

1. A method of identifying an object having an identification means,  
5 **characterized by**

receiving at a mobile station an authorization signal indicating a  
point of time allowed for transmission of an identification request signal,

reading the object's identification data from the identification means  
by transmitting said identification request signal by the mobile station's radio  
10 transmitter, and receiving an identification signal by the mobile station's radio  
receiver or by the mobile station's infrared receiver, and

identifying said object on the basis of the identification data included  
in the identification signal.

2. A method as claimed in claim 1, **characterized by** the  
15 further steps of

transmitting the identification data read by the mobile station with  
the mobile station's radio transmitter via a base station in a mobile communi-  
cation system to a data processing device in which data relating to said object  
is stored, and

20 identifying said object by comparing the data stored in the data  
processing device with said identification data.

3. A system comprising  
a mobile switching centre (MSC),  
a base station (BTS) communicating with the mobile switching cen-  
25 tre,

a mobile station (MS, MS') comprising a radio transmitter (TRX) and  
a radio receiver (TRX) for setting up a connection to the mobile switching cen-  
tre via the base station,

30 an object (1) comprising an identification means (2) composed of a  
tag comprising means for generating an identification signal including identifi-  
cation data in response to a predetermined identification request signal, and

a data processing device (3) in which data relating to said object is  
maintained, **characterized in that**

35 said system comprises control means (BSC) for generating and  
transmitting an authorization signal indicating a point of time allowed for

transmitting an identification request signal, and  
said mobile station (MS, MS') comprises  
means for reading said object's (1) identification data from the identification means (2):

5 - by transmitting an identification request signal with the mobile stations (MS) radio transmitter (TRX) at a point of time indicated by the authorization signal, and

- by receiving the identification data included in an identification signal with the mobile stations radio receiver (TRX) or with an infrared receiver  
10 (5), and

means for transmitting the read identification data with the mobile station's radio transmitter (TRX) over the radio path via the base station (BTS) further to said data processing device (3).

4. A system as claimed in claim 3, **characterized** in that said  
15 tag (2) is a passive tag comprising means for recovering energy from said identification request signal and means for generating said identification signal with said recovered energy.

5. A system as claimed in claim 3 or 4, **characterized** in that said tag comprises means for generating an RF frequency identification signal.

20 6. A system as claimed in claim 3 or 4, **characterized** in that said tag comprises means for generating an identification signal composed of an infrared signal.

7. A system as claimed in any one of claims 3 to 6, **characterized** in that

25 said control means (BSC) are arranged to generate and transmit said authorization signal in response to an inquiry signal received by the control means, and

said mobile station (MS) comprises means (TRX) for transmitting the inquiry signal to said control means (BSC).

30 8. A system as claimed in any one of claims 3 to 6, **characterized** in that

said system is a time division mobile communication system, in which the frequency channels used by the system are divided into timeslots,

35 said control means (BSC) are arranged to generate and transmit an authorization signal indicating the timeslot or timeslots allowed for the transmission of the identification request signal, and



said mobile station (MS) comprises means (TRX) for receiving the authorization signal from the control means (BSC) and for transmitting the identification request signal in the timeslot indicated by the authorization signal.

- 5                   9. A mobile station comprising  
a user interface (4), and  
a radio transmitter (TRX) and a radio receiver (TRX) for setting up a  
connection to a base station (BTS) in a mobile communication system via ra-  
dio signals, **c h a r a c t e r i z e d** in that the mobile station further comprises  
10                   means for receiving an authorization signal transmitted by the base  
station (BTS) over the radio path,  
                    means (TRX, 5) which, in response to measures carried out by the  
mobile station's user via the user interface (4), read identification data from an  
object's identification means (2), said means for reading the identification data  
15                   are composed of the mobile station's (MS) radio transmitter (TRX), which at  
the point of time indicated by the authorization signal transmits a predeter-  
mined identification request signal, and of the mobile station's radio receiver  
(TRX) or of an infrared receiver (5), which receives an identification signal  
comprising the identification data, and  
20                   the mobile station (MS, MS') comprises means for transmitting the  
read identification data with said radio transmitter (TRX) to said base station.

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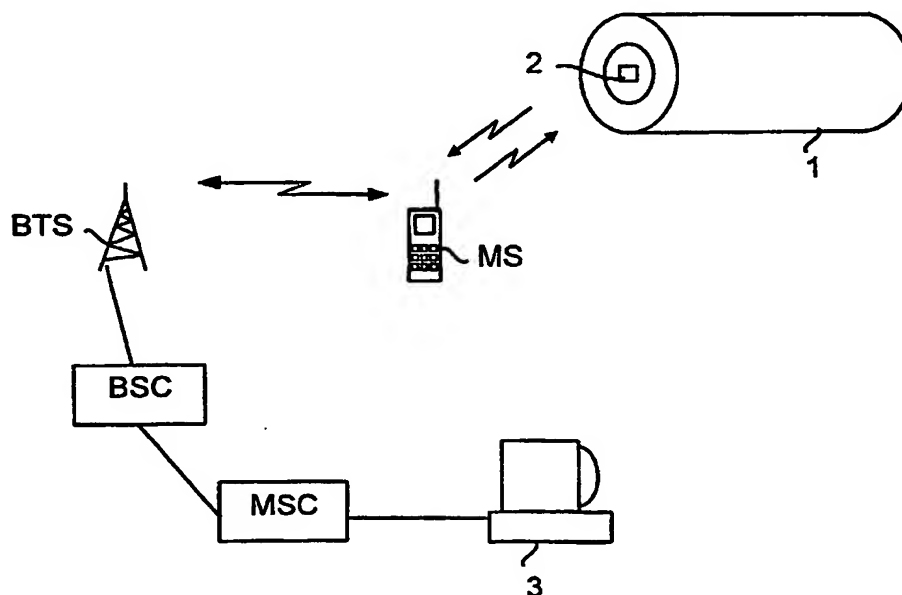
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- (71) Applicant (for all designated States except US): NOKIA NETWORKS OY [FI/FI]; Keilalahdentie 4, FIN-02150 Espoo (FI).
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- (75) Inventor/Applicant (for US only): TUULOS, Martti [FI/FI]; Pilotinkatu 38, FIN-33900 Tampere (FI).
- (74) Agent: KOLSTER OY AB; Iso Roobertinkatu 23, P.O. Box 148, FIN-00121 Helsinki (FI).
- (81) Designated States (national): AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report
- (88) Date of publication of the international search report:  
26 July 2001

[Continued on next page]

(54) Title: IDENTIFYING AN OBJECT



(57) Abstract: The present invention relates to a system comprising: a mobile switching centre (MSC), a base station (BTS) communicating with the mobile switching centre, a mobile station (MS) comprising a radio transmitter and a radio receiver for setting up a connection to the base station via the base station, an object (1) comprising an identification means (2), and a data processing device (3) in which data relating to said object is maintained. For identifying the object, the mobile station (MS) comprises: means for reading said object's (1) identification data from the identification means (2), and means for transmitting the read identification data by the mobile station's radio transmitter over the radio path via the base station (BTS) further to said data processing device (3).

WO 01/02873 A3



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/00583

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/32, G06K 7/10, G06K 17/30, G06F 17/60  
According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06K, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5850187 A (CURT L. CARRENDER ET AL), 15 December 1998 (15.12.98), column 1, line 1 - column 2, line 30; column 3, line 14 - line 43; column 4, line 24 - column 5, line 29, abstract	1,3,4
Y	--	10-12,16,18
X	WO 9720420 A2 (FIRMA HELICOM ENTWICKLUNGSGESELLSCHAFT FÜR TELEKOMMUNIKATION UND MEDIEN-TECHNIK MBH), 5 June 1997 (05.06.97), page 3, line 10 - line 15; page 3, line 25 - line 32; page 6, line 1 - line 15	1,2,8
Y	--	10-12,16,18

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

15 February 2001

Date of mailing of the international search report

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Name and mailing address of the ISA/

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/00583

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0645728 A2 (SYMBOL TECHNOLOGIES, INC.), 24 August 1994 (24.08.94), column 6, line 1 - line 31; column 6, line 48 - column 7, line 8; column 8, line 16 - line 28, column 9, line 23 - column 11, line 2; column 11, line 53 - column 12, line 40; column 13, line 26 - column 13, line 47; column 16, line 9 - column 16, line 30.  --	1,2,8-10,16
X	WO 9917230 A1 (SCHLASBERG JOHAN), 8 April 1999 (08.04.99), page 3, line 7 - line 16; page 4, line 21 - page 5, line 11; page 5, line 30 - page 6, line 26, figures 1-3, abstract, page 9, line 20-line 28; page 16, line 28-page 17, line 18; page 18, line 1 - line 31; page 19, line 23 - line 36, page 20, line 1 - page 21, line 17; page 25, line 4 - line 20  --	1-4,8,10-12, 16,18
A	Automotive Applications of Electronics, 1988 IEEE Workshop on, Volume, October 1988, (Santa Fe, NM, USA), Koelle, A.R., "Short range UHF telemetry system using passive transponders for vehicle ID and status information" page 34 - page 38  --	11,12
A	Solid-State Circuits Conference, 1997 Digest of Technical papers., Volume, February 1997, (Yorktown Heights, NY USA), D. Friedman et al, "A low-power CMOS integrated circuit for field-powered radio frequency identification tags" page 294  -- -----	11,12

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/FI 00/00583

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

**see extra sheet**

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: 1-4, 8, 10-12, 16, 18
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☒ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/00583

The independent claims can be divided into two groups:

Group 1: Claim 1 relates to a method of identifying an object having identification means by a mobile station.

Group 2: Claims 8 and 16 relate to a system with a mobile station comprising means for reading an object's identification data and a mobile station with means for reading an object's identification data.

The technical feature common to the independent claim 1 and the independent claims 8 and 16 is to read an object's identification data from an identification means by a mobile station.

However, the search has revealed that this feature is not novel since it is disclosed in each of the documents US 5850187 A (Carrender et al.) and WO 97/20420 A2 (Helicom).

Consequently the common technical feature of both groups is not a special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

Since there exists no other feature common to all the claims 1, 8 and 16 which can be considered as a special technical feature within the meaning of PCT Rule 13.2, second sentence, no technical relationship within the meaning of PCT Rule 13 between the first group of inventions according to claim 1 and the second group of inventions according to claims 8 and 16 can be seen.

Consequently, claim 1 and claims 8, 16 do not satisfy the requirement of unity of invention a posteriori.

The technical features common to claims 8 and 16 are

- A radio transmitter and a radio receiver for setting up a connection to a base station,
- means for reading data from an object's identification means and
- means for transmitting data with the radio transmitter to a base station.

The search has revealed that these features are not novel since they are disclosed in document WO 97/20420 A2 (Helicom).

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Consequently the common technical feature of claims 8 and 16 is not a special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

Since there exists no other feature common to claims 8 and 16 which can be considered as a special technical feature within the meaning of PCT Rule 13.2, second sentence, no technical relationship within the meaning of PCT Rule 13 between the inventions according to claims 8 and 16 can be seen.

Consequently, claims 8 and 16 do not satisfy the requirement of unity of invention a posteriori.

The feature common to all of claims 2, 3 and 7 are the features of claim 1.

However, Document US 5850187 A (abstract) discloses a method of identifying an object having an identification means comprising the steps of reading the object's identification data from the identification means by a mobile station, and identifying said object on the basis of the identification data read by the mobile station. Thus, the invention according to claim 1 is not novel.

Consequently the features of claim 1 are not special technical features within the meaning of PCT Rule 13.2, second sentence, since they make no contribution over the prior art.

Since there exists no other common feature which can be considered as a special technical feature within the meaning of PCT Rule 13.2, second sentence, no technical relationship within the meaning of PCT Rule 13 between the different inventions can be seen.

Consequently, claims 2, 3 and 7 do not satisfy the requirement of unity of invention.

The special technical feature common to all of claims 4-6 are the features of claim 3. However, the search has revealed that these features are not novel since they are disclosed in document US 5850187 A (abstract). The feature common to claims 4 and 5 is that an identification request is send by the mobile station's radio transmitter. This feature is not novel because it is also disclosed in document US 5850187 A (abstract). Consequently, the features common to all of claims 4-6 and the feature common to claims 4-5 is not a special



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technical feature within the meaning of PCT Rule 13.2, second sentence, because it makes no contribution over the prior art. Since there exist no other common feature which can be considered as a special technical feature within the meaning of PCT Rule 13.2, no technical relationship within the meaning of PCT Rule 13 between the different inventions of claims 4, 5 and 6 can be seen.

Thus, claims 4, 5 and 6 do not satisfy the requirement of unity of invention.

The features common to claims 9 and 10 are the features of claim 8.

However, the search has revealed that these features are not novel since they are disclosed in document WO 97/20420 A2.

Consequently, the features common to claims 9 and 10 are not special technical features within the meaning of PCT Rule 13.2, second sentence, because they make no contribution over the prior art. Since there exist no other common feature which can be considered as a special technical feature within the meaning of PCT Rule 13.2, no technical relationship within the meaning of PCT Rule 13 between the different inventions of claims 9 and 10 can be seen.

Thus, claims 9 and 10 do not satisfy the requirement of unity of invention.

The features common to all of claims 11-13 are the features of claim 10.

With the background of a device for data transfer as disclosed in document WO97/20420 A2 and an identification system as disclosed in document US 5850187 A the person skilled in the art would consider to transfer identification data via a mobile telecommunication system in an identification system so as to reach the invention according to claim 10. Therefore, the invention according to claim 10 is considered obvious for a person skilled in the art.

Thus, the features of claim 10 make no contribution over the prior art and are therefore not special technical features within the meaning of PCT Rule 13.2, second sentence. Since there exists no other common feature, which can be considered as a special technical feature within the meaning of PCT Rule 13.2 second sentence, no technical relationship within the meaning of PCT Rule 13 between the different inventions can be seen.

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Consequently, claims 11-13 do not satisfy the requirement of unity of invention a posteriori.

The features common to claim 17 and claims 18-20 are the features of claim 16. However, these features are not novel since they are disclosed in document EP 0645728 A2 (Symbol Technologies Inc.). Thus, the features of claim 16 are not special technical features within the meaning of PCT Rule 13.2, second sentence, since they make no contribution over the prior art.

Thus, the invention according to claim 17 and the invention according to claims 18-20 are not so linked as to form a single general inventive concept and do therefore not satisfy the requirement of unity of invention a posteriori.

Thus, the following inventions can be identified in the present application:

- I. Method for identifying an object by reading the object's bar code with a bar code reader arranged in a mobile station and identifying said object on the basis of the read bar code (claim 2)
- II. Method for identifying an object with an identification means by sending an identification request signal by the mobile station's radio transmitter, generating an response signal by the identification means and receiving the identification signal by the mobile station's radio receiver (claim 4)
- III. Method for identifying an object with an identification means by sending an identification request signal by the mobile station's radio transmitter, generating an response signal by the identification means and receiving the identification signal by the mobile station's infrared receiver (claim 5)
- IV. Method for identifying an object with an identification means by sending an identification request signal by the mobile station's infrared transmitter, generating an response signal by the identification means and receiving the identification signal by the mobile station's infrared receiver (claim 6)

- V. Method of identifying an object with an identification means by reading the object's identification data from the identification means by a mobile station, transmitting the identification data with the mobile station's radio transmitter via a base station in a mobile communication system to a data processing device and identifying said object by comparing the data stored in the data processing device with the identification data (claim 7)
- VI. System comprising a mobile switching centre, a base station communicating with the mobile switching centre, a mobile station comprising a radio transmitter and a radio receiver with a bar code reader, an object comprising a bar code, a data processing device in which data relating to the object's bar code is maintained and means for transmitting the read bar code information with the mobile station's radio transmitter over a radio path via the base station to the data processing device (claim 9)
- VII. System comprising a mobile switching centre, a base station communicating with the mobile switching centre, a mobile station comprising a radio transmitter and a radio receiver for setting up a connection to the mobile switching centre via the base station, an object with a tag, said tag comprising means for generating an identification signal including identification data in response to a predetermined identification request signal, the mobile station's means for reading the identification data include means for transmitting said identification request signal and means for receiving the identification data included in said identification signal, said tag is a passive tag comprising means for recovering energy from said identification request signal and means for generating said identification signal with said recovered energy (claim 11 and claims 14, 15 when dependent on claim 11))
- VIII. System comprising a mobile switching centre, a base station communicating with the mobile switching centre, a mobile station comprising a radio transmitter and a radio receiver for setting up a connection to the mobile switching centre via the base station, an object with a tag, said tag comprising means for generating an identification signal including identification data in response to a predetermined identification request signal, the mobile station's means for reading the identification data include means for transmitting said

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identification request signal and means for receiving the identification data included in said identification signal, said tag comprises means for generating an RF identification signal, the identification signal is received by a mobile station's radio receiver (claim 12 and claims 14, 15 when dependent on claim 12))

- IX. System comprising a mobile switching centre, a base station communicating with the mobile switching centre, a mobile station comprising a radio transmitter and a radio receiver for setting up a connection to the mobile switching centre via the base station, an object with a tag, said tag comprising means for generating an identification signal including identification data in response to a predetermined identification request signal, the mobile station's means for reading the identification data include means for transmitting said identification request signal and means for receiving the identification data included in said identification signal, said tag comprises means for generating an infrared signal, said infrared signal is received by a mobile station's infrared receiver (claim 13 and claims 14, 15, when dependent on claim 13)
- X. Mobile station with user interface, radio transmitter and radio receiver for setting up a connection to a base station in a mobile communication system via radio signals, the mobile station comprises means which, in response to measures carried out by the mobile station's user via the user interface, read identification data from an object's bar code and the mobile station comprises means for transmitting the read bar code data with said radio transmitter to said base station (claims 17)
- XI. Mobile station with user interface, radio transmitter and radio receiver for setting up a connection to a base station in a mobile communication system via radio signals, the mobile station comprises means which, in response to measures carried out by the mobile station's user via the user interface read identification data from an object's bar code and the mobile station comprises means for transmitting the read identification data with said radio transmitter to said base station, the mobile station comprising a radio transmitter transmitting an identification request signal (claims 18-20)

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

27/12/00

International application No.

PCT/FI 00/00583

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
US	5850187	A	15/12/98	EP	1019879 A	19/07/00
				JP	2000508791 T	11/07/00
				US	6078251 A	20/06/00
				WO	9736269 A	02/10/97
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WO	9720420	A2	05/06/97	DE	29518675 U	08/02/96
				EP	0864220 A	16/09/98
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EP	0645728	A2	24/08/94	CA	2130319 A	26/02/95
				JP	7154456 A	16/06/95
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WO	9917230	A1	08/04/99	AU	8250098 A	23/04/99
				EP	1016006 A	05/07/00
				SE	0001064 A	26/05/00
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(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
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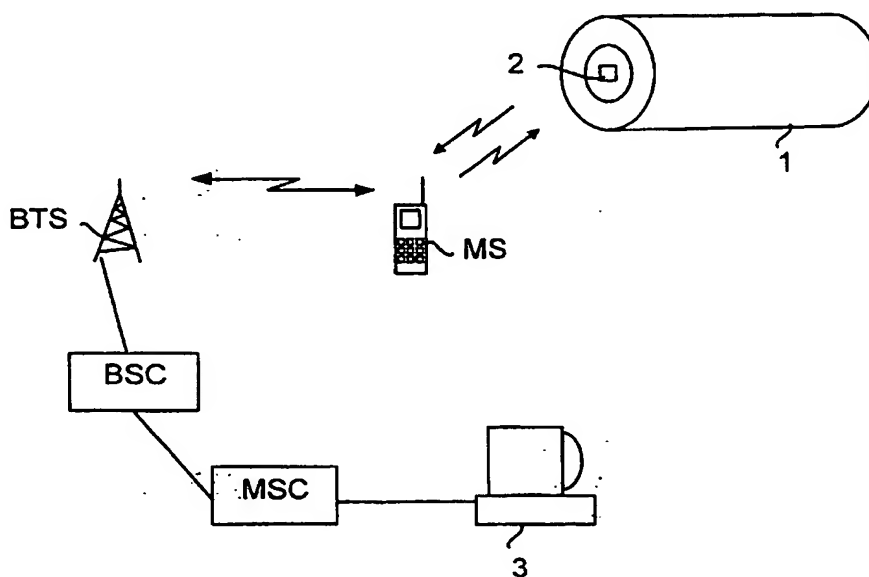
PCT

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**WO 01/02873 A3**

- (51) International Patent Classification<sup>7</sup>: **H04Q 7/32**, (74) Agent: **KOLSTER OY AB**; Iso Roobertinkatu 23, P.O. Box 148, FIN-00121 Helsinki (FI).  
G06K 7/10, G06F 17/30, 17/60
- (21) International Application Number: **PCT/FI00/00583** (81) Designated States (*national*): AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
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- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data: **991494** **30 June 1999 (30.06.1999)** **FI**
- (71) Applicant (*for all designated States except US*): **NOKIA NETWORKS OY [FI/FI]**; Keilalahdentie 4, FIN-02150 Espoo (FI).
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): **TUULOS, Martti [FI/FI]**; Pilotinkatu 38, FIN-33900 Tampere (FI).

[Continued on next page]

(54) Title: **IDENTIFYING AN OBJECT**



(57) Abstract: The present invention relates to a system comprising: a mobile switching centre (MSC), a base station (BTS) communicating with the mobile switching centre, a mobile station (MS) comprising a radio transmitter and a radio receiver for setting up a connection to the base station via the base station, an object (1) comprising an identification means (2), and a data processing device (3) in which data relating to said object is maintained. For identifying the object, the mobile station (MS) comprises: means for reading said object's (1) identification data from the identification means (2); and means for transmitting the read identification data by the mobile station's radio transmitter over the radio path via the base station (BTS) further to said data processing device (3).

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- *with amended claims*

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**Date of publication of the revised international search report:**

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

REVISED  
VERSION

INTERNATIONAL SEARCH REPORT

1

International Application No.

PCT/FI 00/00583

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/32, G06K 7/10, G06F 17/30, G06F 17/60  
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06K, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5850187 A (CURT L. CARRENDER ET AL), 15 December 1998 (15.12.98), column 1, line 1 - column 2, line 30; column 3, line 14 - line 43; column 4, line 24 - column 5, line 29, abstract	1,3,4
Y	--	10-12,16,18
X	WO 9720420 A2 (FIRMA HELICOM ENTWICKLUNGSGESELLSCHAFT FÜR TELEKOMMUNIKATION UND MEDIEN-TECHNIK MBH), 5 June 1997 (05.06.97), page 3, line 10 - line 15; page 3, line 25 - line 32; page 6, line 1 - line 15	1,2,8
Y	--	10-12,16,18

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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- "A" document defining the general state of the art which is not considered to be of particular relevance
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"&" document member of the same patent family

Date of the actual completion of the international search

11 July 2001

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/00583

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0645728 A2 (SYMBOL TECHNOLOGIES, INC.), 24 August 1994 (24.08.94), column 6, line 1 - line 31; column 6, line 48 - column 7, line 8; column 8, line 16 - line 28, column 9, line 23 - column 11, line 2; column 11, line 53 - column 12, line 40; column 13, line 26 - column 13, line 47; column 16, line 9 - column 16, line 30  --	1,2,8-10,16
X	WO 9917230 A1 (SCHLASBERG JOHAN), 8 April 1999 (08.04.99), page 3, line 7 - line 16; page 4, line 21 - page 5, line 11; page 5, line 30 - page 6, line 26, figures 1-3, abstract, page 9, line 20-line28; page 16, line 28-page 17, line 18; page 18, line 1 - line 31; page 19, line 23 - line 36, page 20, line 1 - page 21, line 17; page 25, line 4 - line 20  --	1-4,8,10-12, 16,18
A	Automotive Applications of Electronics, 1988 IEEE Workshop on, Volume, October 1988, (Santa Fe, NM, USA), Koelle, A.R., "Short range UHF telemetry system using passive transponders for vehicle ID and status information" page 34 - page 38  --	11,12
A	Solid-State Circuits Conference, 1997 Digest of Technical papers., Volume, February 1997, (Yorktown Heights, NY USA), D. Friedman et al, "A low-power CMOS integrated circuit for field-powered radio frequency identification tags" page 294  -- -----	11,12

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/FI 00/00583**Box I** Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

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because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II** Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

**see extra sheet**

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: **1-4, 8, 10-12, 16, 18**
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☒ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

The independent claims can be divided into two groups:

Group 1: Claim 1 relates to a method of identifying an object having identification means by a mobile station.

Group 2: Claims 8 and 16 relate to a system with a mobile station comprising means for reading an object's identification data and a mobile station with means for reading an object's identification data.

The technical feature common to the independent claim 1 and the independent claims 8 and 16 is to read an object's identification data from an identification means by a mobile station.

However, the search has revealed that this feature is not novel since it is disclosed in each of the documents US 5850187 A (Carrender et al.) and WO 97/20420 A2 (Helicom).

Consequently the common technical feature of both groups is not a special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

Since there exists no other feature common to all the claims 1, 8 and 16 which can be considered as a special technical feature within the meaning of PCT Rule 13.2, second sentence, no technical relationship within the meaning of PCT Rule 13 between the first group of inventions according to claim 1 and the second group of inventions according to claims 8 and 16 can be seen.

Consequently, claim 1 and claims 8, 16 do not satisfy the requirement of unity of invention a posteriori.

The technical features common to claims 8 and 16 are

- A radio transmitter and a radio receiver for setting up a connection to a base station,
- means for reading data from an object's identification means and
- means for transmitting data with the radio transmitter to a base station.

The search has revealed that these features are not novel since they are disclosed in document WO 97/20420 A2 (Helicom).

Consequently the common technical feature of claims 8 and 16 is not a special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

Since there exists no other feature common to claims 8 and 16 which can be considered as a special technical feature within the meaning of PCT Rule 13.2, second sentence, no technical relationship within the meaning of PCT Rule 13 between the inventions according to claims 8 and 16 can be seen.

Consequently, claims 8 and 16 do not satisfy the requirement of unity of invention a posteriori.

The feature common to all of claims 2, 3 and 7 are the features of claim 1.

However, Document US 5850187 A (abstract) discloses a method of identifying an object having an identification means comprising the steps of reading the object's identification data from the identification means by a mobile station, and identifying said object on the basis of the identification data read by the mobile station. Thus, the invention according to claim 1 is not novel.

Consequently the features of claim 1 are not special technical features within the meaning of PCT Rule 13.2, second sentence, since they make no contribution over the prior art.

Since there exists no other common feature which can be considered as a special technical feature within the meaning of PCT Rule 13.2, second sentence, no technical relationship within the meaning of PCT Rule 13 between the different inventions can be seen.

Consequently, claims 2, 3 and 7 do not satisfy the requirement of unity of invention.

The special technical feature common to all of claims 4-6 are the features of claim 3. However, the search has revealed that these features are not novel since they are disclosed in document US 5850187 A (abstract). The feature common to claims 4 and 5 is that an identification request is send by the mobile station's radio transmitter. This feature is not novel because it is also disclosed in document US 5850187 A (abstract). Consequently, the features common to all of claims 4-6 and the feature common to claims 4-5 is not a special

technical feature within the meaning of PCT Rule 13.2, second sentence, because it makes no contribution over the prior art. Since there exist no other common feature which can be considered as a special technical feature within the meaning of PCT Rule 13.2, no technical relationship within the meaning of PCT Rule 13 between the different inventions of claims 4, 5 and 6 can be seen.

Thus, claims 4, 5 and 6 do not satisfy the requirement of unity of invention.

The features common to claims 9 and 10 are the features of claim 8.

However, the search has revealed that these features are not novel since they are disclosed in document WO 97/20420 A2.

Consequently, the features common to claims 9 and 10 are not special technical features within the meaning of PCT Rule 13.2, second sentence, because they make no contribution over the prior art. Since there exist no other common feature which can be considered as a special technical feature within the meaning of PCT Rule 13.2, no technical relationship within the meaning of PCT Rule 13 between the different inventions of claims 9 and 10 can be seen.

Thus, claims 9 and 10 do not satisfy the requirement of unity of invention.

The features common to all of claims 11-13 are the features of claim 10.

With the background of a device for data transfer as disclosed in document WO97/20420 A2 and an identification system as disclosed in document US 5850187 A the person skilled in the art would consider to transfer identification data via a mobile telecommunication system in an identification system so as to reach the invention according to claim 10. Therefore, the invention according to claim 10 is considered obvious for a person skilled in the art.

Thus, the features of claim 10 make no contribution over the prior art and are therefore not special technical features within the meaning of PCT Rule 13.2, second sentence. Since there exists no other common feature, which can be considered as a special technical feature within the meaning of PCT Rule 13.2 second sentence, no technical relationship within the meaning of PCT Rule 13 between the different inventions can be seen.

Consequently, claims 11-13 do not satisfy the requirement of unity of invention a posteriori.

The features common to claim 17 and claims 18-20 are the features of claim 16. However, these features are not novel since they are disclosed in document EP 0645728 A2 (Symbol Technologies Inc.). Thus, the features of claim 16 are not special technical features within the meaning of PCT Rule 13.2, second sentence, since they make no contribution over the prior art.

Thus, the invention according to claim 17 and the invention according to claims 18-20 are not so linked as to form a single general inventive concept and do therefore not satisfy the requirement of unity of invention a posteriori.

Thus, the following inventions can be identified in the present application:

- I. Method for identifying an object by reading the object's bar code with a bar code reader arranged in a mobile station and identifying said object on the basis of the read bar code (claim 2)
- II. Method for identifying an object with an identification means by sending an identification request signal by the mobile station's radio transmitter, generating an response signal by the identification means and receiving the identification signal by the mobile station's radio receiver (claim 4)
- III. Method for identifying an object with an identification means by sending an identification request signal by the mobile station's radio transmitter, generating an response signal by the identification means and receiving the identification signal by the mobile station's infrared receiver (claim 5)
- IV. Method for identifying an object with an identification means by sending an identification request signal by the mobile station's infrared transmitter, generating an response signal by the identification means and receiving the identification signal by the mobile station's infrared receiver (claim 6)

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- V. Method of identifying an object with an identification means by reading the object's identification data from the identification means by a mobile station, transmitting the identification data with the mobile station's radio transmitter via a base station in a mobile communication system to a data processing device and identifying said object by comparing the data stored in the data processing device with the identification data (claim 7)
- VI. System comprising a mobile switching centre, a base station communicating with the mobile switching centre, a mobile station comprising a radio transmitter and a radio receiver with a bar code reader, an object comprising a bar code, a data processing device in which data relating to the object's bar code is maintained and means for transmitting the read bar code information with the mobile station's radio transmitter over a radio path via the base station to the data processing device (claim 9)
- VII. System comprising a mobile switching centre, a base station communicating with the mobile switching centre, a mobile station comprising a radio transmitter and a radio receiver for setting up a connection to the mobile switching centre via the base station, an object with a tag, said tag comprising means for generating an identification signal including identification data in response to a predetermined identification request signal, the mobile station's means for reading the identification data include means for transmitting said identification request signal and means for receiving the identification data included in said identification signal, said tag is a passive tag comprising means for recovering energy from said identification request signal and means for generating said identification signal with said recovered energy (claim 11 and claims 14, 15 when dependent on claim 11))
- VIII. System comprising a mobile switching centre, a base station communicating with the mobile switching centre, a mobile station comprising a radio transmitter and a radio receiver for setting up a connection to the mobile switching centre via the base station, an object with a tag, said tag comprising means for generating an identification signal including identification data in response to a predetermined identification request signal, the mobile station's means for reading the identification data include means for transmitting said

identification request signal and means for receiving the identification data included in said identification signal, said tag comprises means for generating an RF identification signal, the identification signal is received by a mobile station's radio receiver (claim 12 and claims 14, 15 when dependent on claim 12))

- IX. System comprising a mobile switching centre, a base station communicating with the mobile switching centre, a mobile station comprising a radio transmitter and a radio receiver for setting up a connection to the mobile switching centre via the base station, an object with a tag, said tag comprising means for generating an identification signal including identification data in response to a predetermined identification request signal, the mobile station's means for reading the identification data include means for transmitting said identification request signal and means for receiving the identification data included in said identification signal, said tag comprises means for generating an infrared signal, said infrared signal is received by a mobile station's infrared receiver (claim 13 and claims 14, 15, when dependent on claim 13)
- X. Mobile station with user interface, radio transmitter and radio receiver for setting up a connection to a base station in a mobile communication system via radio signals, the mobile station comprises means which, in response to measures carried out by the mobile station's user via the user interface, read identification data from an object's bar code and the mobile station comprises means for transmitting the read bar code data with said radio transmitter to said base station (claims 17)
- XI. Mobile station with user interface, radio transmitter and radio receiver for setting up a connection to a base station in a mobile communication system via radio signals, the mobile station comprises means which, in response to measures carried out by the mobile station's user via the user interface read identification data from an object's bar code and the mobile station comprises means for transmitting the read identification data with said radio transmitter to said base station, the mobile station comprising a radio transmitter transmitting an identification request signal (claims 18-20)



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Information on patent family members

02/07/01

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Patent document cited in search report			Publication date	Patent family member(s)		Publication date
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**AMENDED CLAIMS**

[received by the International Bureau on 1 March 2001 (01.03.01);  
original claims 1-20 replaced by amended claims 1-9 (3 pages)]

1. A method of identifying an object having an identification means,  
5 **characterized by**

receiving at a mobile station an authorization signal indicating a  
point of time allowed for transmission of an identification request signal,

reading the object's identification data from the identification means  
by transmitting said identification request signal by the mobile station's radio  
10 transmitter, and receiving an identification signal by the mobile station's radio  
receiver or by the mobile station's infrared receiver, and

identifying said object on the basis of the identification data included  
in the identification signal.

2. A method as claimed in claim 1, **characterized** by the  
15 further steps of

transmitting the identification data read by the mobile station with  
the mobile station's radio transmitter via a base station in a mobile communi-  
cation system to a data processing device in which data relating to said object  
is stored, and

20 identifying said object by comparing the data stored in the data  
processing device with said identification data.

3. A system comprising  
a mobile switching centre (MSC),  
a base station (BTS) communicating with the mobile switching cen-  
25 tre,

a mobile station (MS, MS') comprising a radio transmitter (TRX) and  
a radio receiver (TRX) for setting up a connection to the mobile switching cen-  
tre via the base station,

an object (1) comprising an identification means (2) composed of a  
30 tag comprising means for generating an identification signal including identi-  
fication data in response to a predetermined identification request signal, and

a data processing device (3) in which data relating to said object is  
maintained, **characterized** in that

said system comprises control means (BSC) for generating and  
35 transmitting an authorization signal indicating a point of time allowed for

transmitting an identification request signal, and  
said mobile station (MS, MS') comprises  
means for reading said object's (1) identification data from the identification means (2):

5               - by transmitting an identification request signal with the mobile stations (MS) radio transmitter (TRX) at a point of time indicated by the authorization signal, and

              - by receiving the identification data included in an identification signal with the mobile stations radio receiver (TRX) or with an infrared receiver  
10           (5), and

              means for transmitting the read identification data with the mobile station's radio transmitter (TRX) over the radio path via the base station (BTS) further to said data processing device (3).

              4. A system as claimed in claim 3, **characterized** in that said  
15           tag (2) is a passive tag comprising means for recovering energy from said identification request signal and means for generating said identification signal with said recovered energy.

              5. A system as claimed in claim 3 or 4, **characterized** in that said tag comprises means for generating an RF frequency identification signal.

20           6. A system as claimed in claim 3 or 4, **characterized** in that said tag comprises means for generating an identification signal composed of an infrared signal.

              7. A system as claimed in any one of claims 3 to 6, **characterized** in that

25           said control means (BSC) are arranged to generate and transmit said authorization signal in response to an inquiry signal received by the control means, and

              said mobile station (MS) comprises means (TRX) for transmitting the inquiry signal to said control means (BSC).

30           8. A system as claimed in any one of claims 3 to 6, **characterized** in that

              said system is a time division mobile communication system, in which the frequency channels used by the system are divided into timeslots,

              said control means (BSC) are arranged to generate and transmit an  
35           authorization signal indicating the timeslot or timeslots allowed for the transmission of the identification request signal, and